

Preaching to the converted: the value of organisationally-supported carbon reduction initiatives.

Abstract

Organisation-led carbon reduction initiatives are bridging the gap between purely individual environmental action and higher-level intervention and regulation. This research looks into one of those initiatives aimed at engaging employees in carbon reduction. We adopt a single case study approach following learning activities of volunteers within a UK organisation over four months. Observations of their activities were conducted, in addition to interviews with participants and organisers.

Our core findings are, firstly, that rather than engaging a wide range of employees, only a very narrow group chose to participate. This group bears similarities with Barr and Gilg's (2006) classification of 'committed' environmentalists which suggests that those willing to participate in these initiatives may be those for whom environmentalism is personally relevant. That there was little evidence of the initiative engaging a broader network of employees raises questions on the effectiveness of these activities in the wider population of employees. Secondly, we identified attitude-behaviour gaps to varying degrees among participants who still made carbon-intensive choices especially in relation to air travel, for example.

We conclude by analysing the effectiveness of the intervention and the associated challenges. Recommendations are made covering several dimensions such as the potential role of technology in facilitating behaviour change, and organisational policy-making with regards to employee engagement to carbon reduction.

Keywords: multilevel carbon reduction initiatives, organisational environmental strategy, technologically mediated behavioural change

Introduction

Many believe that the environmental 'crisis' is worsening (Griggs et al., 2013; IPCC, 2013; Meadows et al., 2005; Randers, 2012; Rockström et al., 2009; UNDP, 2013; Whiteman et al., 2013; World Bank, 2012; WWF, 2014). Since 'Limits to Growth' was first published in 1972, it is estimated that humanity's environmental footprint has increased by 50% (WWF, 2014), which is believed to be undermining the planetary "must haves" that we need to sustain our societies, such as: ecosystem services, biodiversity, and climate stability (Griggs et al., 2013: p. 306). Each of them is being negatively impacted by increasing atmospheric concentrations of carbon dioxide caused by human activity (IPCC, 2013).

Climate change is one of the most serious man-made environmental problems (IPCC, 2013). Global average temperatures have increased by an estimated 1° C since 1850 (IPCC, 2013) and 2011-2015 was the warmest five year period on record since 1850 (WMO, 2015). This increase in temperature is believed to be driving an increase in extreme weather events and causing the sea levels to rise (IPCC, 2013). Climate change also interacts with other environmental problems as it is thought to be contributing towards phenomena such as water scarcity and accelerated rates of species extinction (WWF, 2014). The use of fossil fuels, which is the root cause of climate change (IPCC, 2007), is also responsible for other environmental problems such as ocean acidification (NOAA, 2015).

Unsurprisingly, climate change has become an increasingly prevalent issue with the discourse of sustainability in the last three decades. In the Brundtland Commission report (WCED, 1987), climate change was constructed as one environmental issue among many, but three decades later, climate change is considered by many to be the preeminent environmental threat to the project of sustainable development (UNDP, 2013; World Bank,

2012). In 2015, climate stabilization has been made one of the UN's Sustainable Development Goals (UN, 2015). Further, there is broad agreement within the discourse on sustainability that the sustainable economy will need to be a low-carbon economy (IPCC, 2007; OECD, 2010; UNEP, 2011; WRI, 1998).

Unsurprisingly, there is much stakeholder pressure on organisations, both public and private sector, to make a contribution towards the transition to a sustainable, low-carbon economy through the development of climate change mitigation strategies. It is commonly believed that such strategies will result in benefits for the economic bottom lines of the organisations that adopt them. For example, CDP believes that economic wins will take the form of “increased revenue, lower costs, mitigated risk, and a host of intangibles” (CDP, 2012: p. 13). The intangibles include improved brand value and reputation (CDP, 2013). It is believed that if such action is voluntary, corporations will find the most cost-effective means to mitigate climate change (WRI/WBCSD, 2007). This creates a great deal of uncertainty about how organisations can contribute towards the transition a sustainable, low-carbon economy.

This paper is based on a case study of the climate change mitigation strategy of a public sector organisation in the United Kingdom, Public Org. The research project upon which this paper is based is ongoing. This paper represents an attempt to make sense of the data collected so far and reflect upon what data needs to be collected in the next stage of the project. The case study adopts a multi-level perspective on climate change mitigation (Starik and Rands, 1995) based on Coleman's (1990) multi-level theory of the organisation. We explore how the organisation is working to implement its strategy and identify areas for improvement.

Theoretical framework

Sustainability is a multi-level concept (Starik and Rands, 1995) but little research on corporate sustainability explores the different levels of sustainability (Whiteman et al., 2013). The complex interactions between supra-national institutions and regulations, national frameworks, organisations and individuals call for a research design that takes into account relationships within and between levels. Our study concentrates on two of those levels, the organisation at a meso-level and the individual at the micro-level. We follow Coleman's framework (1990) to analyse these relationships (Figure 1).

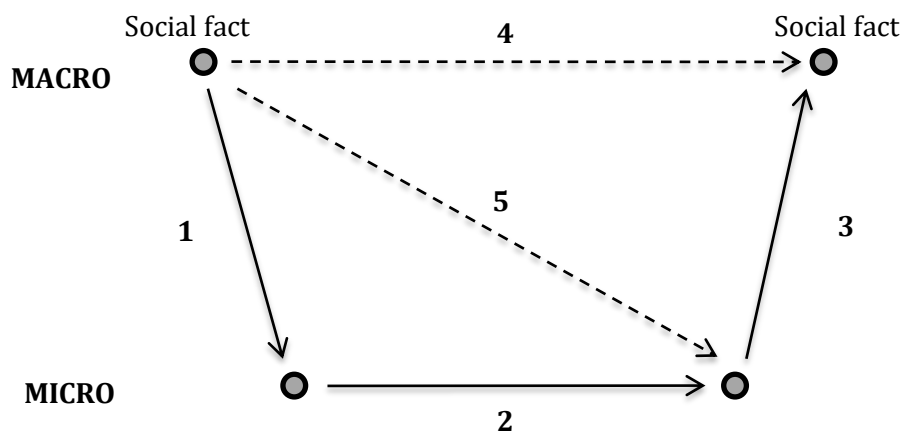


Figure 1. Coleman's diagram adapted by Felin and Foss (2006)

Developed by the sociologist James Coleman (1990), the model represents different types of possible relationships between the collective level (macro) and the individual level (micro). There is a clear differentiation between collectives and members and an indication of the relationships between them. Although the model accommodates for a direct link between input and output at the collective level, it has been critical for those that argue that collective level explanations and group behaviour can be broken down into discreet components emerging from individual intentions, attitudes and behaviours, i.e. micro-foundations (Veselý, 2008).

This model, which some criticize as an oversimplification of issues of social order (Sato, 2010), was chosen for this study as it reflects our position on methodological individualism (Felin and Foss, 2006). It accurately depicts, in our view, the transitions between levels as observed in the organisational setting. We recognize that issues of emergence of order or outcomes at the higher level from the micro level remain difficult to explain. This is a limitation acknowledged by the creator of the model (Coleman, 1990).

We offer below a summary of the relationships described in the model, including Felin and Foss' addition (2006) and then proceed to explain how it will be adapted to this research.

Relationship 1-Macro to micro (expression)

This first relationship accounts for the impact that social or collective phenomena have in the lower level, a process that has been labelled as *expression* (Sprigg and Jackson, 2006). Those ways in which macro-level characteristics influence factors at the micro-level can be seen in the way organisations influence its members, for example organisational culture affecting individual organisational identification. This relationship is not necessarily constrained to the internal environment of organisations, it can be appreciated in the attraction-selection-attrition process whereby some candidates are attracted to an organisation based on perceived organisational culture and values while others feel the opposite effect (Carmeli, 2005). This link is typically addressed in the sense of how macro characteristics shape individual actions.

Relationship 2- Micro to micro

The micro to micro linkage has been approached mainly in the quest for causality between attitudes or beliefs and behaviours (Felin and Foss, 2006). There is still no agreement on the

nature of such links as the highly complex nature of human action and interaction has not yet been fully explained. This link is critical for organisational researchers because, regardless of the exact nature of the relationship between attitudes and behaviours, it is at the individual level that most action, including that attributed to higher-level entities, occurs and is subject to intervention from those trying to change systems or individuals (Veselý, 2008). Not surprisingly, this is also the level observed by scholars trying to understand both individual and group phenomena.

Relationship 3- Micro to macro (emergence)

The process of emergence stresses the ways in which structured order emerges at the system level as a result of the behaviour of actors at a lower level, for instance, individual performance transformed into business outcomes. It reflects the question of “how do micro actions combine to yield macro characteristics” (Veselý, 2008). Despite much research on the topic, it is unclear how individual actors’ inputs combine to create group outputs (Salas et al., 2009).

Relationship 4- Macro to macro relationship

This is one of the most contended relationships in social research (Harter et al., 2002). Interactions that happen only at a macro level remain controversial as some authors claim they do not exist in human systems, i.e. collective level phenomena occurs only if/when enacted or actioned by individuals while others believe there is such a thing as system behaviour, bypassing individual agency.

Felin and Foss (2006) argue that it is virtually impossible to find this type of relationship given that “there are no conceivable mechanisms on the social domain that operate solely

on the collective level. There simply are no mysterious macro-level entities directly producing macro-level outcomes.”

Veselý (2008) concurs with that view and adds that such linkage is non causal given that social institutions or global entities “do not have the agency to bring about change”. Vromen (2008) differs with the point that explanations at a macro-level are incomplete because “they miss out on crucial links in the causal chain connecting macro phenomena with each other”.

He argues that by “squaring” Coleman’s diagram “one can see why and how macro-explanations need not miss out any link in the causal chains that connect macro phenomena. Micro-analyses are still needed, but not to specify causal links that macro-explanations miss out on.” According to this author individuals are “constitutive components parts in macro phenomena” (Vromen, 2008).

On the contrary, Coleman posits that “...there is no tangible macro level...the macro level, the system behaviour, is an abstraction” (Coleman, 1990). For him, individuals transform the structure of positions under influence of their changing goals, creating a new context for themselves and thereby contributing to the transition in the organisation of society (Vromen, 2008).

And the same applies to organisations, entities as the “board of directors” are nothing but a group of individuals invested with the power to make decisions and change the structure, composition and procedures of the entire organisation.

We subscribe to the view that higher-level goals and strategies are ultimately grounded on and dependent upon actions and interactions that occur at the individual level, i.e. methodological individualism (Felin and Foss, 2006)

Relationship 5: macro to micro

The addition of Felin and Foss (2006) to Coleman's framework is depicted by arrow 5 which they conceived as a direct connection between collective inputs and individual action, 'bypassing' individual attitudes. This relationship implies a passive role of individual actors who act upon designs come 'from above' and individual-level considerations are second to inputs from the group which are the driving force of individual outcomes (Felin and Foss, 2006).

Figure 2 shows Coleman's diagram fitted to this research. At the higher level we have placed what we have labelled inputs and outputs from and for the organisation. We understand inputs as the investment that the organisation makes to achieve its desired outputs. Under inputs we will analyse those resources devoted to achieving organisational environmental

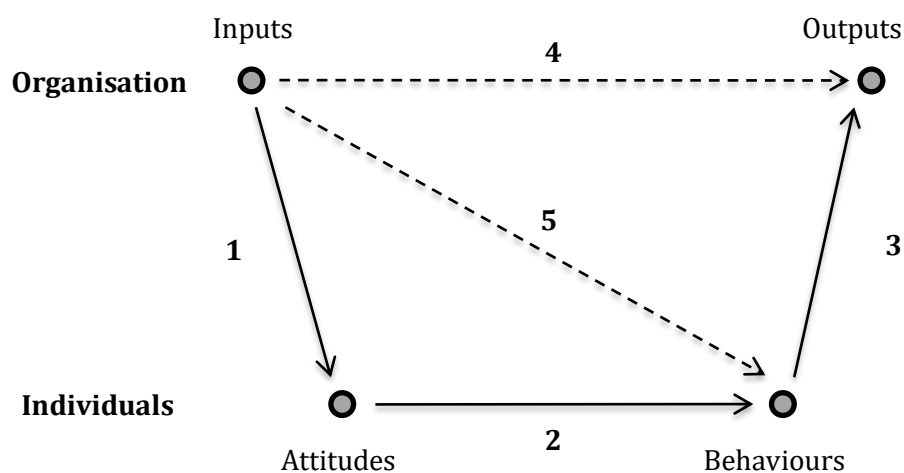


Figure 2. This research fitted into Coleman's diagram.

goals. We use a broad concept of resources, which are stocks of available factors (Amit and Schoemaker, 1993) that extend beyond material properties (e.g. financial resources or equipment) to include information, services and status (Foa, 1993).

Outputs, in this model, are the desired outcomes that the organisation expects to attain through its environmental strategy. It is worth noticing that despite our belief in methodological individualism, i.e. that higher-level phenomena are grounded in the actions of individuals, we have maintained the fourth relationship represented in the original model which we consider to be limited to the direct effect that technology has on achieving organisational goals. So, although it is grounded on decisions made by individuals, we consider that system-level direct links between inputs and outputs can be achieved through using technology that ‘bypasses’ individuals.

At the micro-level we include attitudes and behaviours, two concepts that act similarly to the input-output dyad at the collective level. We consider attitudes as favourable or unfavourable predispositions towards meaningful objects, systems or phenomena (Schiffman and Wisenblit, 2015). Although we understand that the specific relationship between attitudes and behaviour is complex, dynamic and remains unclear, we adopt the common assumption that attitudes influence behaviours and can act as an antecedent of behaviour which we define as the expressions of feelings through action (Schiffman and Wisenblit, 2015).

Research Design

The starting point for this research was our interest in organisational led initiatives to reduce carbon emissions, the value of such initiatives and the motivations of participants.

One of the researchers was able to observe a sustainability-themed committee within the organisation, leading to an awareness of the 'Community Education' project offered to employees of the organisation.

The research consisted of a single case study based on qualitative methods. Stake (1995 p. xi) states that a "(c)ase study is the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances." An organisational case study as specified by Lee (1989 p. 4) "refers to (1) the intensive study of a single case, where (2) the case consists of the entire configuration of individuals, groups, and social structure in the setting of an organisation, and (3) the case researcher passively observes the rich details of events in the way that they naturally unfold in their natural, organisational setting."

Criticisms of case studies are acknowledged, for example, lack of generalizability (Brewerton and Millward, 2001), however Yin (2009) reports that case studies should be used when the focus of the research is within a real-life situation, there is limited control and "how" or "why" questions are being asked. It was considered that each of these conditions was satisfied, thus making the case study methodology an appropriate tool. In particular, the flexibility of the case study approach lent itself ideally to the exploratory nature of this research. Full ethical approval of the research was gained.

The data consisted of strategy documents, interviews and observations. Through engagement with the data the research team identified a 'Community Education' initiative that was explored in greater depth through further interviews and observations from January to May 2016. The initiative involved a facilitator-led discussion on a given topic

related to carbon emissions amongst participants as well as associated 'homework' and preparation from the provided material.

Through this process of observation the researchers were able to note how the 'Community Education' programme was conducted and responses to the initiative from the participants. Following these observations purposively sampled participants from the programme (both the series we observed and participants from a previous 'trial' version), a HR representative involved in the organisation of the programme and the 'Community Education' facilitator were invited to informal interviews to discuss the project. Questioning followed a semi-structured interview guide designed to capture key ideas about motivations for participation or support of the project, particular successes or issues and any impact on attitudes and behaviour of participants.

These interviews were audio recorded and subsequently transcribed. We took a thematic approach to coding transcripts, based on areas of interest. Interviewees who were participants in the 'Community Education' programme were also asked to complete a short survey based on the Barr and Gilg (2006) framework in order to establish levels of environmental commitment.

The unit of analysis is the organisation's environmental strategy. Our concept of strategy is based on that of the 'learning school' (Mintzberg et al., 1998). Strategy is defined as "pattern or consistency in action" (Mintzberg et al., 1998: p. 189). Strategy consists of the combination of two types of strategy: deliberate strategy and emergent strategy (Mintzberg et al., 1998). Deliberate strategy is the organisation's plan, i.e. the objectives it sets for itself and the means through which it intends to achieve those objectives. Emergent strategy is

the strategy that emerges as the members of the organisation engage in their everyday activities. These activities may be consistent with the deliberate strategy but extend it in an unanticipated direction, e.g. by experimenting with new means for achieving the organisation's objectives that were not included in the original plan, or may consist of activities that are included in the plan at all, e.g. by members of the organisation responding to an unanticipated opportunity or threat, such as the development of a new technology that has the potential to revolutionise an industry.

Findings and Discussion

The organisation has a specific sustainability mission to become carbon positive and in addition to improving energy efficiency throughout the grounds and sustainability related policies, encourages employees to take an "active role" in reducing their personal carbon footprint (Public Org, 2016). The organisation's 'Environmental Policy' therefore aims that everyone involved within the organisation participates in minimising adverse environmental impacts (Public Org, 2013). The 'Environmental & Sustainability Strategy' is a comprehensive document aimed at outlining the process for becoming a more sustainable organisation (Public Org, 2015), including objectives and Key Performance Indicators. A specific part of this strategy is to ensure good communications with employees in order to increase engagement on sustainability issues. Their preferred strategy is to "provide a consistent message on sustainability issues to employees" (p. 21) rather than to explicitly encourage changes in their behaviour.

Our findings will be organised into planned and emergent strategy and then our own recommendations presented following our chosen theoretical model, i.e. Coleman's diagram.

Section 1 - Deliberate environmental strategy

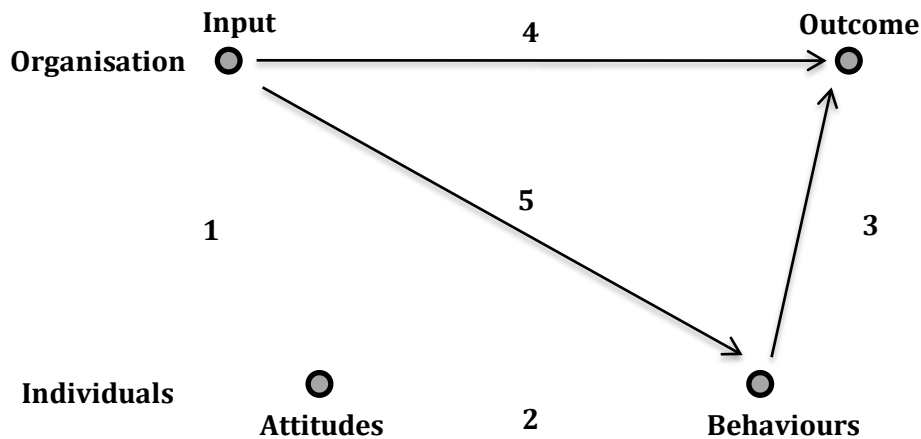


Figure 2. Multilevel representation of the intended environmental strategy.

Inputs

Education: 'Education for Sustainable Development' is one of the Proposed Strategic Aims for Environmental Sustainability. There are educational initiatives being developed; for example the Carbon Education programme has been offered to employees for two years.

Technology: There are a range of technological inputs. For example there is investment into energy-efficient equipment such as movement sensors to turn off lights and equipment that goes into automatic stand-by mode. New buildings need to consider the environment and the environmental performance of existing buildings are improved.

Policy: The main policy input is in the area of sustainable procurement and ethical investment. For major purchasing decisions environmental impacts should be considered and suppliers should have environmental standards.

Attitudes

The strategy does not explicitly concern itself with changing the attitudes of employees. This is why there are not any relationships involving attitudes presented in Figure 2. The organisation does spend money on behaviour change initiatives and educational workshops however, which will be looked at in the next section.

Behaviour

The strategy does seek to change the behaviour of employees by encouraging greener working practices, particularly in the area of more sustainable transport (to work). There are also a variety of opportunities for greener lifestyles offered such as edible gardens and walk/cycle to work days.

Outcome

There is an overarching sustainability mission to become carbon positive, however the organisation has not set a timeframe for this to be achieved. Their short-term 'Environmental & Sustainability Strategy' has more specific targets and a timeframe (by 2017). For example, by 2017 it aims to not send any waste to landfill, recycle half its waste and have less than half of employees travel to work in a single occupancy vehicle.

Section 2 - Emergent environmental strategy

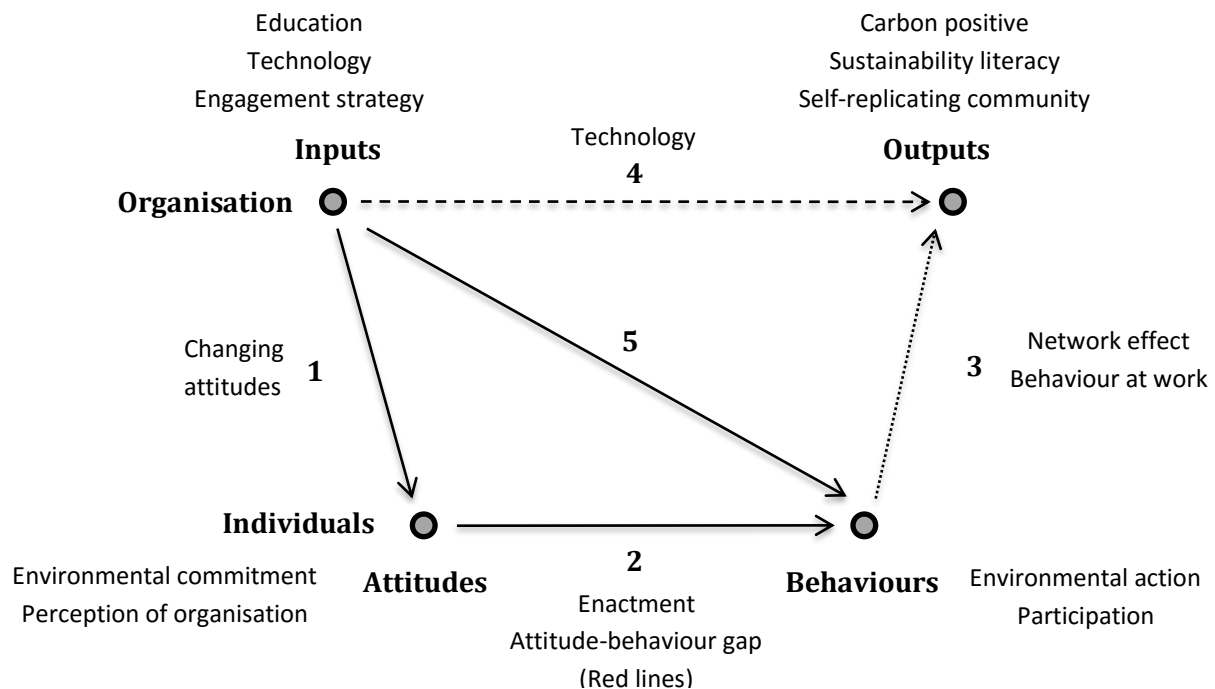


Figure 3. Multilevel representation of the emergent organisational strategy.

In terms of the specific resources that the organisation actually invested (enactment of strategy) to achieve its desired outputs, education, technology and engagement strategy emerge as the most relevant. Education was translated into the Community Education programme described in the Methods section. It was not, however, planned by the original strategy outlined in the previous section but it was the result of the initiative of an individual employee in the Department for the Environment.

Technology plays a relatively modest role within the emergent strategy. Social networks were used to publicise the Community Education programme and to recruit participants, as were internal networks in the organisation. An eLearning module is planned for training purposes which will involve both employees and contractors. However, as an organisational factor to influence attitudes (Relationship 1, Figure 3) technology elicits mixed responses from participants.

On the one hand some participants consider that it has a relevant role in reducing environmental impact, two participants questioned its effectiveness in changing attitudes or behaviours. One concern is that using digital media to campaign for environmental causes can be depressing and lead to a negative mood as so many news about the environment are negative (Participant 1). Another concern is the environmental impact of technology in itself, Participant 3 reflected on the tension between going paperless and doing everything possible through digital means and having to use more energy in using digital devices.

A more successful technological input was the introduction of energy consumption trackers that participants in the Community Education programme were lent to measure their consumption at home. Its popularity and perceived usefulness was evident in the sessions we observed and they had positive behavioural outcomes which will be discussed later.

The Engagement Strategy attempts to build knowledge and educate internal stakeholders through organising chats, Go Green events, organising volunteering opportunities around the environment and conducting internal energy audits.

In some instances, the organisation attempts to 'bypass' attitudes and goes directly to modify behaviours (5th relationship in Figure 3), e.g. by offering sustainably-sourced food on-site, free drinking water, free cloth bags, a cycling programme which gives preferential prices for employees interested in buying bikes as well as cycle parking spaces and free bike clinics. Moreover, the organisation has allocated funds to support behaviour-changing initiatives championed by the Department for the Environment.

The organisation has also modified its landscape to make it more environmentally-friendly, tries to involve its internal stakeholders in initiatives to grow food on-site and offers a

‘Green fund’ which provides financial support for internal stakeholders to offer solutions to environmental issues. Other incentives to modify behaviour are offered through HR initiatives, such as loans to purchase seasonal train tickets, an internal car-sharing scheme, reducing the space dedicated to car parks and a car rental/purchase scheme which offers attractive discounts to those interested on electric vehicles.

In all of those, participants are not necessarily expected to hold environmentally-friendly attitudes but are offered means to change their behaviour through different incentives or have to change their behaviour altogether as they have no choice (e.g. by only being able to buy Fair Trade products on-site).

Relationship 1 (Figure 3) was also evidenced through the explicit attempt to modify individual behaviours. For this, the organisation has attempted community-building programmes both online and off line. As part of our observation, we were part of one of such online communities and perceived that it was rather unidirectional, i.e. the communication flow emerged from the organisers while participants remained passive and contributed little.

Training for internal stakeholders is at best inconsistent. With the Community Education programme, the organisation attempted to facilitate knowledge transfer among employees, however, the programme had mixed results due to a number of reasons. Firstly, the level of organisational support for the organising team was uneven. While the pilot trial was organised during working hours, the actual programme was organised outside working hours which contributed to higher levels of attrition among participants.

Secondly, the kind of employees who signed up for both the trial and the actual programme was what Barr and Gilgs (2006) call committed environmentalists, a fact that did not go unnoticed among participants. “(...) you end up preaching to the converted because the people who are motivated to go and are interested in going, they're on message anyway, they understand and they've committed anyway. I would think if you just did [an activity] on carbon consumption, you would get the same people go to it. Again, you always speak to the converted.” (Participant 4)

Therefore, the appeal of the programme itself seemed reduced to those who were already highly invested in the environment. It is symptomatic that all interviewees referred to little or no attitudinal change post-programme due to their initial attitudes being already firmly established. This brings into question the effectiveness of these programmes to reach employees with lower levels of environmental commitment. Similarly, the aim of changing attitudes of other internal stakeholders seems hard to attain being as its reach and effect seemed confined to those highly commitment employees. There was little evidence of a ripple down effect through the organisation.

Within the attitudinal factor, the perception of the organisation was a salient theme. On the one, hand all interviewees expressed agreement with the organisation devoting resources to educate its employees and have a positive impact on the general community. No one felt the organisation was violating the limits between work and employees' private spheres by trying to offer training and education for environmental matters at home. However, everyone referred to the lack of advocacy for environmental causes among the senior leadership team, which was perceived as one reason why these programmes are not better integrated into the processes and culture of the organisation.

Two main themes were identified within Relationship 2, attitudes and behaviours. Firstly, it was clear that all participants and interviewees were enacting their attitudes to a great extent. They all referred to environmentally desirable behaviour as part of their daily lives, for example, one interviewee reported not flying in the last 10 years as a conscious decision to lower their carbon footprint (Participant 2). Another participant installed a Smart Meter at home after trying the energy tracking device provided by the Community Education programme.

However, several attitude-behaviour gaps were evident among this group of highly committed individuals. Participant 1 reported several air travels every year which they are unwilling to reduce as they wish to see the world. Another participant talked about going on holidays often using their car and a third participant mentioned their concern about the local council not disposing of recycled material properly but evidenced no intention to actively engage with this issue. It was also evident that most of these individuals attempted to off-set their impact to reduce the dissonance (Burnes, 2009) produced by those choices.

In the case of holidays and tourism, the means to get to the destination were carbon-intensive to different extents, but all participants who talked about this also referred to mitigation strategies such as using local transport or walking once there, choosing to reuse towels at hotels or going camping to relatively nearby areas.

It was clear that several red lines hinder the adoption of more sustainable behaviour. Participants referred to a lack of willingness to give up technology which they use as a means of communication or for entertainment purposes. This speaks of the dual role of technology as an enabler of and an obstacle to more sustainable lifestyles.

Financial considerations were also a concern. Participants commented on the investment needed to be more environmentally friendly and concluded that they were not willing to go beyond budget for environmental considerations. Another important factor hindering environmental behaviour is personal, family and animal well-being. Participant 3 referred to drawing a line if adopting further environmental practices could lead to negative health or psychological outcomes for the family unit, including pets.

A topic that emerged strongly from our interviews is that the intended network effect or community building and self-replication of the educational programme was not realised due to an important limiting factor. Most participants mentioned that they only talked about the programme to other like-minded people, i.e. others with high environmental commitment. This was true both at work and as part of their personal networks. The reasons for this is that environmental topics are perceived as 'sensitive' which leads to self-censoring in an attempt to maintain the equilibrium in work and personal networks. In participant's words, they "don't want to be seen as preaching" (Participant 4).

As mentioned earlier, it is unclear how individual actions combine to produce higher-level outputs. This study is no exception. Relationship 3 was very weak and hardly observed, which we attribute to two main reasons. Firstly, the attempt to generate a network effect from this initiative is not likely to happen in the terms that the organisation expected for the reasons explained above. Secondly, because of the characteristics of those who engaged in the educational programme, the effect of the education provided was limited in the work environment. Not only were these participants already doing more than average at work, it became evident that working in a team and sharing offices imposed constraints on how much more they could do. Workplace issues such as too cold air conditioning or over-filling

kettles were perceived as not address-able as any action on that sense would negatively affect the group dynamic. All these factors combined make it difficult for the programme to maintain momentum and thus limit its ability to combine into meaningful higher-level outcomes.

In short, the attempt to use education to drive awareness and behavioural change had limited results, not least because some of the antecedents analysed in here would not have led to some of the desired outputs anyway. That is the case of 'becoming carbon positive' which means, at the very least, reducing carbon emissions to zero but none of the factors analysed, alone or combined, would have attained that goal.

Sustainability literacy, another desired organisational output, may be achievable by a combination of actions explained in here but it will not be easy nor quick especially without full commitment from the senior leadership team. As one of the organisers put it "for it to be really, really improved you want from the top 'this is a solid commitment from [the organisation] and for people to be supported and almost more than proactively encouraged to attend".

Developing a successful self-replicating programme also seems hard to achieve due to self-censorship and the characteristics of those drawn to the programme, as explained before. Bringing people together from all parts of the organisation seems achievable. But, whether an active community will remain afterwards is uncertain.

Section 3 - Recommendations

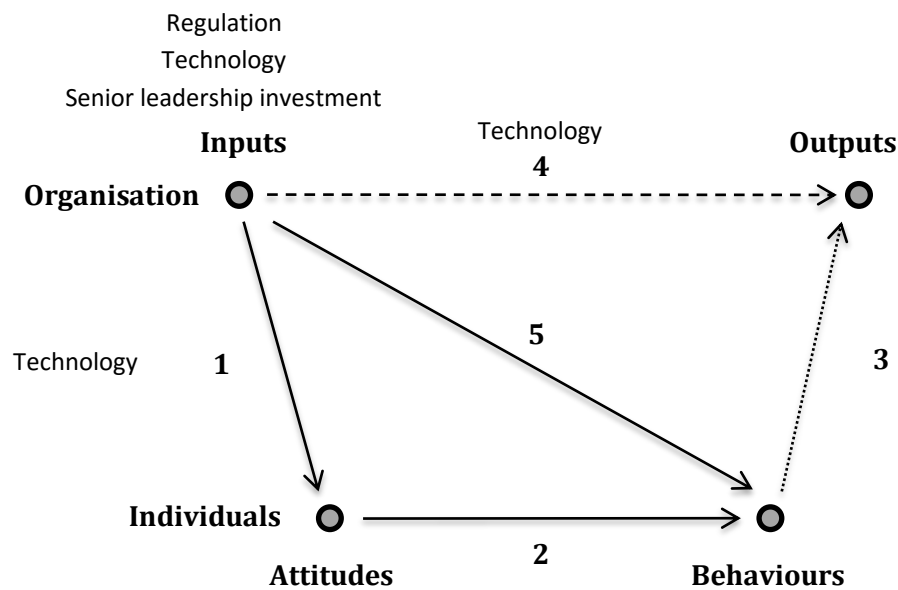


Figure 4. Multilevel representation of recommended changes

In this section we will present recommendations arisen from our research. Still within Coleman's diagram, our recommendations are mainly circumscribed to organisational inputs and Relationships 1 and 4.

Inputs

We believe a fundamental change in this part of the process is at the regulatory and policy-making level. Environmental education could and should be embedded into HR processes to a greater extent. We propose that recruitment of new employees could include setting expectations of the environmental behaviour of new recruits and clearly state the organisational position with regards to the environment as is common with other issues, for example, discrimination. Further environmental education should be included as part of the induction of new employees and included in their compulsory training. As for existing employees, similar training should be provided regularly and regarded as compulsory too. More specialist training could be offered depending on the role of each individual.

We believe any further education should refer as much to on-the-job behaviour as to the behaviour at home. After all, employees tend to spend a significant portion of the day at work where circumstances and conditions are different to those from home.

As a response to some of the issues identified by our interviewees, we believe that more leadership effort is needed at the highest level. That could start by including the environmental agenda among the tasks of someone in the leadership team and making it a priority in all strategic planning, budgeting and reporting. A similar model could be trickled down the organisation in the shape of environment 'marshals' in different areas with the responsibility and resources to act upon developing environmentally sustainable attitudes and behaviours in each area.

Regulating the use of land owned by the organisation in a way that benefits employees and the environment could lead to more food growing and sharing/exchanging initiatives.

Relationships 1 and 4

Technology could play a more central role in these relationships. At the macro-to-macro level, the organisation could invest on technology made by environmentally friendly process and able to save energy without human input, for example by using in-built energy-saving settings by default. The use of sensors could extend beyond the lighting system to include audio-visual as well as other equipment.

On the software side, we believe that different approaches are needed to influence attitudes. Introducing environmental concepts through games or other entertaining formats could be a way to break down potential communication barriers that could limit people's attention to environmental topics. Similarly, from an informational perspective, attention

should be paid to striking a balance with regards to the nature of the communication provided. We believe that changing how environmental discourse is framed could avoid the 'feeling down' reported by our interviewees.

As part of the IT offering of the organisation, employees could be given free access to apps or other software to help with practical issues that ultimately lead to more environmentally friendly behaviour. This is especially important in the areas of food waste, energy consumption tracking and carbon footprint monitoring, all of which are topics that could help employees save money, a major motivation for behavioural change.

Finally, more information should be provided on the most environmentally-friendly practices in the office, especially in relation to paper-based and paper-less practices.

Conclusions

This paper explored the climate change mitigation strategy of Public Org, a public sector organisation in the United Kingdom. While the research project upon which this paper is based is ongoing, the paper is able to make sense of the data collected so far to produce provisional findings and identify areas for improvement. We have found that Public Org's strategy to become 'carbon positive' remains unrealised. Despite its laudable ambition, their environmental strategy can be characterised as 'symbolic' (Furrer et al., 2012).

One of the reasons for this is that the strategy does not give sufficient attention to the attitudes of its employees. However, we do identify an emergent strategy that does attempt to change employee attitudes and that seeks to change the behaviour of employees outside as well as inside the workplace through a community education initiative. Unfortunately, we found that this emergent strategy is also failing to change employee behaviour, even amongst those that are highly motivated to engage in climate change mitigation. The principal contribution of this paper is the incipient development of a multi-level perspective on climate change mitigation (Starik and Rands, 1995) based on Coleman's (1990) multi-level theory of the organisation.

References

- Amit, R. & Schoemaker, P. J. H. (1993). STRATEGIC ASSETS AND ORGANIZATIONAL RENT. *Strategic Management Journal*, 14(1), 33-46.
- Barr, S., Shaw, G. & Coles, T. (2011). Sustainable Lifestyles: Sites, Practices, and Policy. *Environment and Planning A*, 43(12), 3011-3029.
- Brewerton, P. M. & Millward, L. (2001). *Organizational research methods: a guide for students and researchers*. London [England] ; Thousand Oaks, CA: SAGE Publications.
- Burnes, B. (2009). *Managing change : a strategic approach to organisational dynamics* (5th ed.). Harlow: FT Prentice Hall.
- Carmeli, A. (2005). Perceived External Prestige, Affective Commitment, and Citizenship Behaviors. *Organization Studies* (01708406), 26(3), 443-464.
- CDP. (2012). *Supply chain report 2012. A new era: Supplier management in the low-carbon economy*. [Online]. London: CDP. Available at: www.cdp.net/cdpresults/cdp-supply-chain-report-2012.pdf. [Accessed: 26/06/13].
- CDP. (2014). *Supply chain report 2013-14: Collaborative action on climate risk*. [Online]. London: CDP. Available at: www.cdp.net/cdpresults/cdp-supply-chain-report-2014.pdf. [Accessed: 26/06/14].
- Coleman, J. S. (1990). *Foundations of social theory*: Cambridge, Mass.; London: Belknap Press of Harvard University Press, 1990.

Felin, T. & Foss, N. (2006). Individuals and Organizations: Thoughts on a Micro-Foundations Project for Strategic Management and Organizational Analysis. *DRUID Working Papers* [Online], (06-01). Available: <http://ideas.repec.org/p/aal/abbswp/06-01.html> [Accessed February, 2009].

Foa, U. G. (1993). *Resource theory : explorations and applications*. San Diego ; London: Academic Press.

Furrer, B., Hamprecht, J. & Hoffmann, V. H. (2012). Much ado about nothing? How banks respond to climate change. *Business and Society*, 51(1), 62-88.

Griggs, D., Stafford-Smith, M., Gaffney, O., Rockström, J., Ohman, M. C., Shyamsundar, P., Steffen, W., Glaser, G., Kanie, N. & Noble, I. (2013). Sustainable development goals for people and planet. *Nature*, 495, 305-307.

Harter, J. K., Schmidt, F. L. & Hayes, T. L. (2002). Business-Unit-Level Relationship Between Employee Satisfaction, Employee Engagement, and Business Outcomes: A Meta-Analysis. *Journal of Applied Psychology*, 87(2), 268-279.

IPCC. (2007). *Climate Change 2007: The physical science basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Online]. Geneva: United Nations. Available at: www.ipcc.ch/report/ar4/wg1/. [Accessed: 04/11/13].

IPCC. (2013). *Climate change 2013: The physical science basis. Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*

[Online]. Geneva: United Nations. Available at:

www.ipcc.ch/report/ar5/wg1/#.UoKXQRD0hEI. [Accessed: 04/11/2013].

Lee, A. S. (1989). Case Studies as Natural Experiments. *Human Relations*, 42(2), 117-137.

Meadows, D., Randers, J. & Meadows, D. (2005). *Limits to growth: The 30-year update*.

London: Earthscan.

Meadows, D., Randers, J., Meadows, D. & Behrens III, W. W. (1974). *Limits to growth: A report for the Club of Rome's project on the predicament of mankind*. London: Pan Books.

NOAA. (2015). *Ocean acidification: The other carbon dioxide problem* [Online]. Available at:

www.pmel.noaa.gov/co2/story/Ocean+Acidification. [Accessed: 15/12/15].

OECD. (2010). *Transition to a low-carbon economy: Public goals and corporate practices*.

Paris: OECD Publishing.

Randers, J. (2012). *2052: A global forecast for the next forty years*. White River Junction, VT:

Chelsea Green Publishing.

Rockström, J., Steffen, W., Noone, K., Persson, A., Chapin III, F. S., Lambin, E., Lenton, T. M., Scheffer, M., Folke, C., Schellnhuber, H., Nykvist, B., De Wit, C. A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P. K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R. W., Fabry, V. J., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P. & Foley, J. (2009). Planetary boundaries: Exploring the safe operating space for humanity. *Ecology and Society*, 14(2).

- Salas, E., Goodwin, G. F. & Burke, C. S. (2009). *Team effectiveness in complex organizations : cross-disciplinary perspectives and approaches*. New York, N.Y. ; London: Psychology Press.
- Sato, Y. (Year). Research Committee on Rational Choice RC45. *In: XVII ISA World Congress of Sociology*, 2010 Gothenburg, Sweden.
- Schiffman, L. G. & Wisenblit, J. (2015). *Consumer behavior/ Leon G. Schiffman, Joseph Wisenblit, Eleventh edition ; Global edition*: Boston, Mass. London Pearson Education.
- Sprigg, C. A. & Jackson, P. (2006). Call Centers as Lean Service Environments: Job-Related Strain and the Mediating Role of Work Design. *Journal of Occupational Health Psychology.*, Vol. 11, No. 2.
- Stake, R. E. (1995). *The art of case study research*: Thousand Oaks Sage Publications.
- Starik, M. & Rands, G. P. (1995). Weaving an integrated web: Multilevel and multisystem perspectives of ecologically sustainable organizations. *The Academy of Management Review*, 20(4), 908-935.
- UNDP. (2013). *Human development report 2013. The rise of the South: Human progress in a diverse world*. New York, NY: United Nations.
- UNEP. (2011). *Towards a green economy: Pathways to sustainable development and poverty eradication - a synthesis for policy makers*. [Online]. Nairobi: United Nations Environment Programme. Available at:

http://web.unep.org/greeneconomy/sites/unep.org.greeneconomy/files/field/image/green_economyreport_final_dec2011.pdf. [Accessed: 26/07/12].

Veselý, A. (2008). Macro-Micro Linkages and the Role of Mechanisms in Social Stratification Research. *Czech Sociological Review*, 69(3), 491-510.

Vromen, J. (2008). Micro-foundations in strategic management: squaring Coleman's diagram. *Reduction and the Special Sciences*. Tilburg.

WCED. (1987). *Our common future*. Oxford: Oxford University Press.

Whiteman, G., Walker, B. & Perego, P. (2013). Planetary boundaries: Ecological foundations for corporate sustainability. *Journal of Management Studies*, 50(2), 307-336.

WMO. (2015). *2015 likely to be warmest on record, 2011-2015 warmest five year period* [Online]. Available at: <http://public.wmo.int/en/media/press-release/wmo-2015-likely-be-warmest-record-2011-2015-warmest-five-year-period>; Geneva: World Meteorological Organization. [Accessed 26/11/15].

World Bank. (2012). *Turn down the heat: Why a 4 degree Celsius warmer world must be avoided*. Washington, DC: The World Bank. [Online.] Available at: <https://openknowledge.worldbank.org/handle/10986/11860> [Accessed: 21/12/14].

WRI. (1998). *Safe climate, sound business: An action agenda*. Washington, DC: World Resources Institute. [Online.] Available at: www.wri.org/sites/default/files/pdf/scsb_action_agenda.pdf. [Accessed: 05/03/14].

WRI/WBCSD. (2007). *Corporate value chain (scope 3) accounting and reporting standard*.

[Online]. Available at: www.ghgprotocol.org/standards/scope-3-standard. [Accessed: 17/04/13].

WWF. (2014). *The living planet report: Species and spaces, people and places*. [Online].

Gland: World Wildlife Fund. Available at:

http://wwf.panda.org/about_our_earth/all_publications/living_planet_report/

[Accessed: 20/01/15].

Yin, R. K. (2009). *Case study research : design and methods* (4th ed.): Sage Publications.